● PRINTER RUSH ●

(PTO ASSISTANCE)

Requery

Application :	10/640624	**Examiner :**	Andrea	**GAU :**	3662
From:	MNJ	**Location:**	(IDC) FMF FDC	**Date:**	7/12/05

Tracking #: 06049760 Week Date: 12/6/04

DOC CODE	DOC DATE	MISCELLANEOUS
☐ 1449		☒ Continuing Data
☐ IDS		☐ Foreign Priority
☐ CLM		☐ Document Legibility
☐ IIFW		☐ Fees
☐ SRFW		☐ Other
☐ DRW		
☐ OATH		
☐ 312		
☑ SPEC	9-20-04	

[RUSH] **MESSAGE:**

1) Continuing data missing from specification. Please advise.

Thanks.

[XRUSH] **RESPONSE:** Stamped

INITIALS: BP

NOTE: This form will be included as part of the official USPTO record, with the Response document coded as XRUSH. Doc'd

REV 10/04

ADAPTIVE FILTER TO REDUCE MULTIPATH

BACKGROUND

This application is a CIP of 09/847,903 filed 05/02/01 and claims benefit of Provisional application 60/202,938, filed 05/09/2000.

The direct path of a radio signal from the transmitter to the receiver is frequently interfered with by reflections of the transmitted signal from stationary and moving objects which reflections are also received by the receiver. These reflected signals are delayed and frequency shifted versions of the direct path signal. When mixed with the direct path signal, the reflected signals corrupt the direct path signal and constitute what is known as multipath noise. In order to cancel the multipath reflections, current multipath canceling methods [References 1 through 10] first measure them. These methods correlate (cross correlate or autocorrelate) two versions of the signal each containing the direct path and multipath reflections. For example, the direct path signal plus multipath reflections is multiplied by a delayed version of the signal plus multipath. The delay is variable. A correlation peak between the direct path and a reflection at a specific value of the variable delay gives a measure of the relative delay between the direct path and the reflected path and a measure of the relative amplitude of the refection. However, when the variable delay matches the relative delay between two reflections, undesired correlation peaks are produced. These peaks are multipath cross correlation noise and they corrupt the measurement process. Once the multipath reflections have been measured, the signal plus multipath is delayed and adjusted in amplitude such that the modified direct path signal portion approximately matches each reflected signal. These modified versions are, then, subtracted from the original signal plus multipath, reducing the multipath noise. However, even if the modified direct path signal portion perfectly matches the multipath reflections and they are totally canceled in the original signal plus multipath, the modified versions contain multipath reflections as well. This adds secondary multipath noise to the